Silver Chest

Store precious flatware in an elegant box with a tarnish-preventing liner.

by Doug Stowe

IN ORDER to pass on the family's heirloom silverware to her oldest daughter, a friend of mine asked me to build a suitable chest to hold it. She didn't want to pass along the burden of polishing, however, and supplied a storage liner for the silverware that has dividers and is treated to keep the silver from tarnishing (see Sources, page 53).

This simplified my task as a box maker, because I wouldn't have to figure out how the various forks, knives, spoons and serving utensils would fit. Beyond sizing the chest to hold the storage liner and making sure it was suitably constructed for the weight of its contents, I was free to concentrate on the chest's appearance.

The front of the chest is thicker than the sides and back, to accommodate its curved profiles (A–C, Fig. A and Cutting List, page 50). The corners are mitered and strengthened with hidden splines (D). A 1/8" plywood bottom (E) is sufficient,
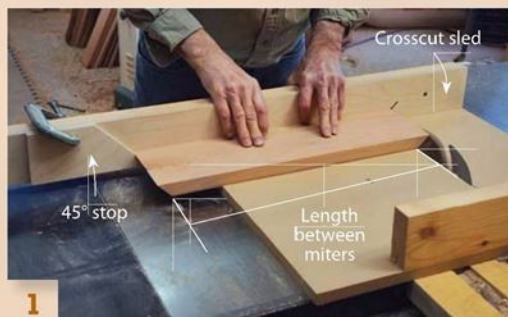
1 **Miter** the box parts after marking the length between the miters on each inside face and installing a 45° stop. This assures the lengths will match, even though the parts are different thicknesses.

Labels: Crosscut sled, 45° stop, Length between miters
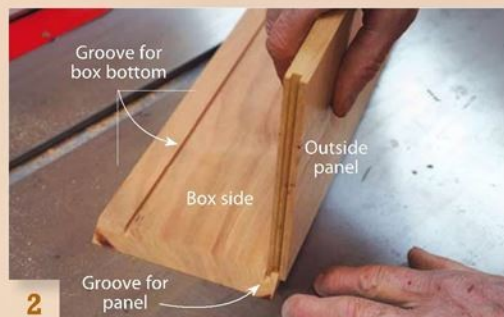
2 **Cut** grooves in the box's front, back and side pieces for the bottom and the panels. Then cut grooves in the panels so they nest in the box pieces.

Labels: Groove for box bottom, Outside panel, Box side, Groove for panel
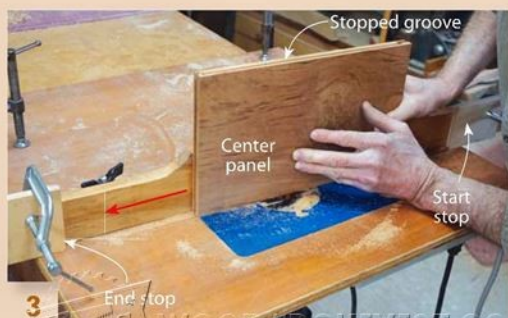
3 **Rout** a stopped groove on each side of the center panel after installing stops to set its length. Lower the panel onto the bit while holding it against the fence and the start stop. Then slowly advance to the end stop.

Labels: Stopped groove, Center panel, Start stop, End stop
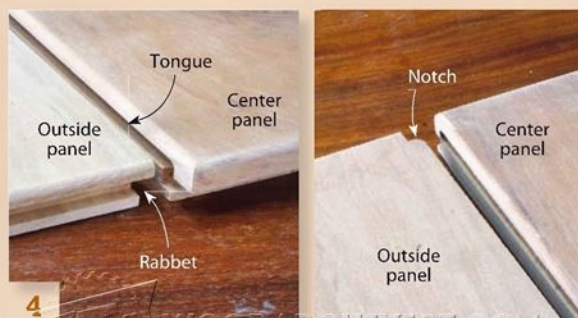
4 **Rabbet** the inside edge of each outside panel to create a tongue that fits the stopped groove you've just routed in the center panel (left). Notch the back end of each tongue to fit (right).

Labels: Tongue, Center panel, Outside panel, Rabbet, Notch, Center panel, Outside panel

because the liner has a 1/4" hardboard bottom of its own.

The lid's stepped construction is designed to hide (but allow) the seasonal movement of its panels (F–G). Hawthorne Craft's new large neat hinges provide an elegant look when the lid is open (see Sources). And as this chest will be heavy when it's filled with silver, its sides are cut out to allow a good grip.

Build a box

The process is to build a box and then cut it apart to create the lid. Start by milling the box front, back and sides to thickness and cutting them to width. Miter one end of each piece. Then mark the final length by measuring between the miters on the inside face. Install a 45° stop to cut the second miters (**Photo 1**). The angled stop accommodates the extra length of the thicker front piece, so you can cut both the front and the back pieces from the same setup.

Cut 1/8" x 3/16" grooves in the front, back and sides for the bottom and the three panels (Fig. B). A blade that cuts a flat-topped kerf makes it easy to measure for a perfect fit (see Sources).

Make the panels

Assemble the box with tape. Then measure its inside dimensions—including the grooves—to precisely calculate the sizes of the center and outside panels. Mill these panels to thickness and cut them to width and length. Next, cut 3/16" x 3/16" grooves in both ends and on the outside edge of each outside panel (**Photo 2**; Fig. C). Use the same setup to groove both ends of the center panel—make adjustments as necessary to cut the deeper groove in its front end. Then trim the front end's bottom tongue's length to match the tongues on the outside panels.

Next, rout stopped 3/16" x 3/16" grooves in both sides of the center panel, 5/16" up from the bottom, 3/8" from the front end and 3/16" from the back end (Fig. C). Install stops on the router table fence to make this blind cut (**Photo 3**).

Rout a 3/32" roundover all around the top of the center panel and on the three grooved edges of each outside panel. Then cut or rout a tongue on the inside edge of each outside panel to fit the stopped grooves you've just routed in the center panel (**Photo 4**).

Cutouts and contours

Use a double-sided template to mark the box's bottom cutouts and contoured front (Fig. D). Mark the bottom cutouts first (**Photo 5**). To mark the box sides and back, align the template's 3/8" tick mark with both mitered ends of each piece. The cutout is slightly elliptical, so make sure to flip over the template to mark each opposite end. To mark the box front (which is
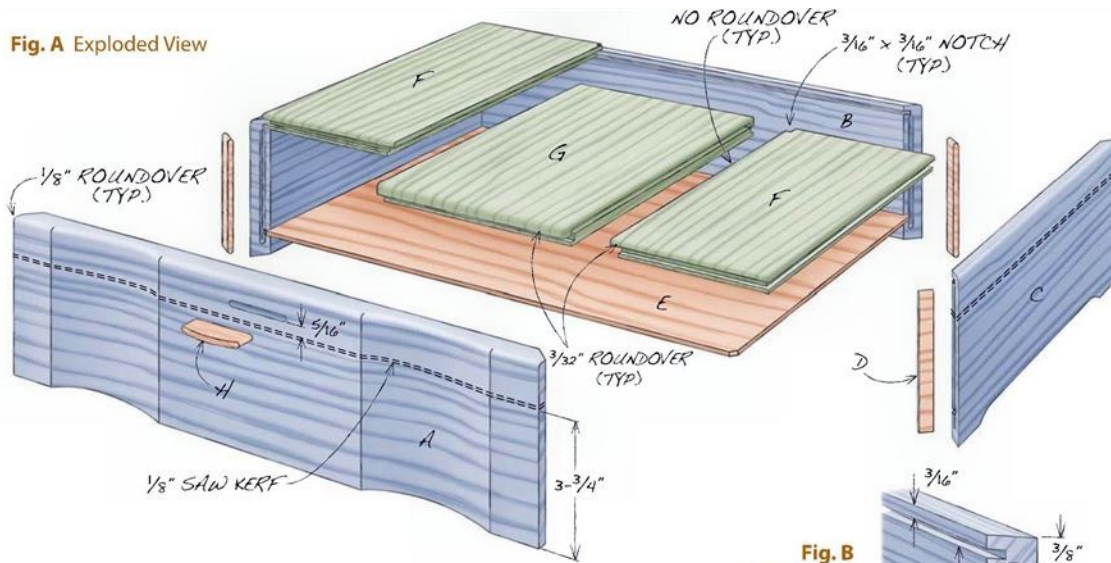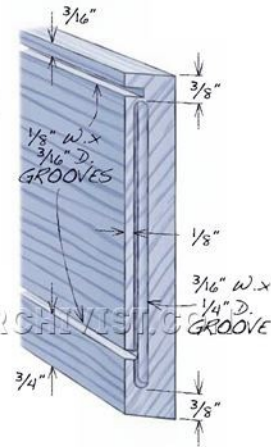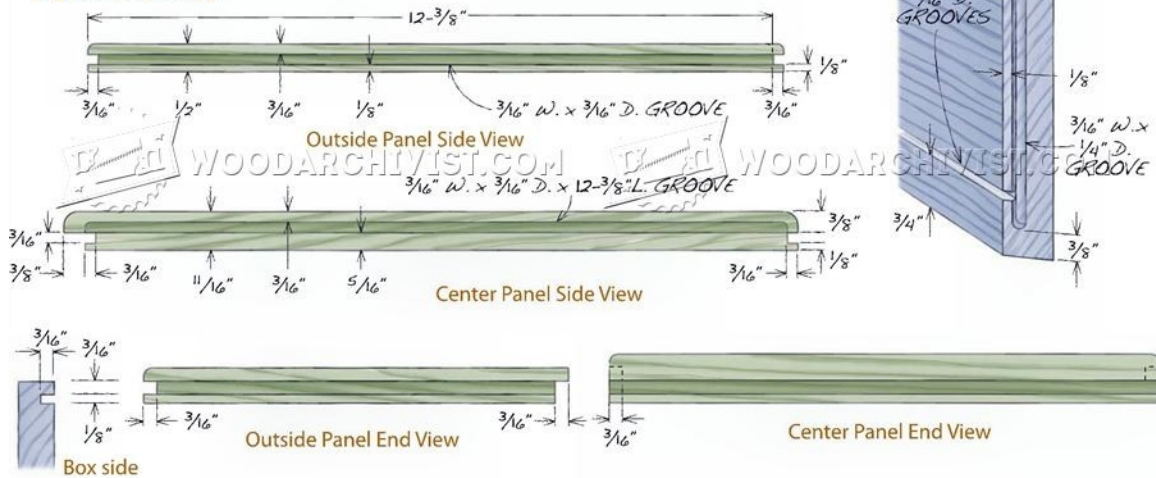
Fig. A Exploded View

NO ROUNDOVER (TYP.)

³⁄₁₆" × ³⁄₁₆" NOTCH (TYP.)

B

F

G

F

⅛" ROUNDOVER (TYP.)

⁵⁄₁₆"

H

E

³⁄₃₂" ROUNDOVER (TYP.)

D

C

⅛" SAW KERF

A

3-³⁄₄"

Fig. B Box Joinery

³⁄₁₆"

³⁄₈"

⅛" W. × ³⁄₁₆" D. GROOVES

⅛"

³⁄₁₆" W. × ¼" D. GROOVE

³⁄₄"

³⁄₈"

Fig. C Panel Joinery

12-³⁄₈"

⅛"

³⁄₁₆" ½" ³⁄₁₆" ⅛"

³⁄₁₆" W. × ³⁄₁₆" D. GROOVE

³⁄₁₆"

Outside Panel Side View

³⁄₁₆" ³⁄₈" ³⁄₁₆" ¹¹⁄₁₆" ³⁄₁₆" ⁵⁄₁₆"

³⁄₁₆" W. × ³⁄₁₆" D. × 12-³⁄₈" L. GROOVE

³⁄₈" ⅛" ³⁄₁₆"

Center Panel Side View

³⁄₁₆" ³⁄₁₆"

⅛" ³⁄₁₆"

Box side

Outside Panel End View

³⁄₁₆" ³⁄₁₆"

Center Panel End View

Cutting List

Overall Dimensions: 5-1/8" x 13-9/16" x 20-3/16" (a)

Part	Name	Qty.	Material	Th x W x L
A	Front	1	Cherry	7/8"x 4-7/8" x 21" (b)
B	Back	1	Cherry	1/2" x 4-7/8" x 20-3/16" (b)
C	Side	2	Cherry	1/2" x 4-7/8" x 13-3/16" (c)
D	Spline	4	Maple	3/16" x 1/2" x 4-1/8"
E	Bottom	1	Baltic birch plywood	1/8" x 12-5/8" x 19-1/2"
F	Outside panel	2	Cherry	1/2" x 6" x 12-9/16"
G	Center panel	1	Cherry	11/16" x 7-3/4" x 12-15/16"
H	Lift	1	Maple	3/16" x 1/2" x 2-13/16"
J	Box hinge support	2	Cherry	1/8" x 7/8" x 2"
K	Lid hinge support	2	Cherry	1/8" x 5/8" x 2"

Notes:
a) Inside dimensions: 3-1/2" x 12-3/16" x 19-3/16".
b) 19-3/16" between miters.
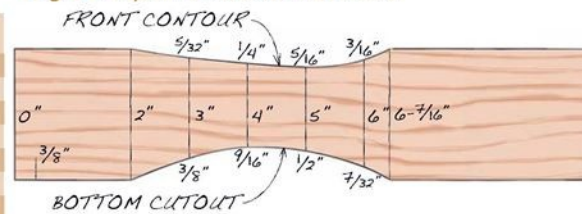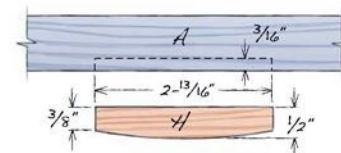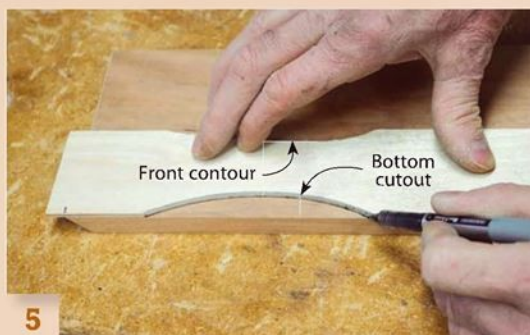c) 12-3/16" between miters.

Fig. D Template for Cutouts and Profiles

FRONT CONTOUR

⁵⁄₃₂" ¼" ⁵⁄₁₆" ³⁄₁₆"

0" 2" 3" 4" 5" 6" 6-⁷⁄₁₆"

³⁄₈"

³⁄₈" ⁹⁄₁₆" ½"

⁷⁄₃₂"

BOTTOM CUTOUT

Fig. E Lift

A ³⁄₁₆"

2-¹³⁄₁₆"

³⁄₈" H ½"

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5 **Mark** the bottom cutouts on the box parts using a double-sided template. Use the other side of the template to mark the box front's concave contours.

6 **Smooth** the contours and cutouts by sanding after bandsawing the rough profiles.

7 **Use** a jig and two stops to rout a stopped groove in each miter for the spline that reinforces the joint. To precisely locate the stops, mount the workpiece mitered-face up.

8 **Rout** each stopped groove with the workpiece mounted mitered-face down. As before, lower the workpiece/jig assembly onto the bit while holding it against the start stop. Then move forward to the end stop.

still longer than the box back) position the end of the template flush with each miter.

Mark the concave contours on the outside face of the box front after positioning the template flush with the long end of each miter. (These contours align with the bottom cutouts.) As before, make sure to flip over the template to create symmetry.

Bandsaw the bottom cutouts and front contours. Then smooth the curves by sanding (**Photo 6**). To make the box easy to pick up, remove the waste between the cutouts on both end pieces.

Rout the spline grooves

Make a jig to rout grooves in the mitered ends of the box front, back and sides for the splines that reinforce the joints (Fig. F).

Use a router table with a fence, two stop blocks and a 3/16" straight bit to rout the grooves (Fig. B). Set the bit's height at 1/4" and position the fence to cut the groove 1/8" from the inside face of the miter. Then clamp stop blocks to the fence in order to start and stop the groove 3/8" from each end (**Photo 7**). To accurately set the fence and the stops, mount the workpiece with its inside face out, so you can measure directly from the mitered end.

To rout the groove, mount the inside face of the workpiece against the face of the jig. Clamp the workpiece to the jig while holding them both against a flat surface. Make sure the workpiece is flush against the jig's fence and that the surfaces of the miter and the jig are perfectly flush—any discrepancies can cause the two sides of the joint to misalign. Hold the jig firmly against the fence when you rout the groove (**Photo 8**).

Make splines

The splines' grain is oriented to run across its width, so it will run parallel to the grain in the box front, back and sides when it's installed. Plane a blank to thickness by checking its fit in the grooves you've just routed in the miters. The blank should slide in and out with slight finger pressure; an overly tight fit will cause problems during glue-up. Rip the blank to width to establish the splines' length—slightly shorter than the length of the grooves. Then use a sanding block to round the edges to match the grooves' rounded ends.

Crosscut the spline stock to create individual spline pieces (**Photo 9**). Then test the fit with the splines installed to make sure all the joints pull completely together, without any gaps. Sand or trim the splines as necessary. While the box is assembled, mark the overhang on both ends of the too-long mitered front piece. Remove the waste after you disassemble the box—it's best to leave the ends a bit long so they can be sanded flush with the sides after the box is glued together.
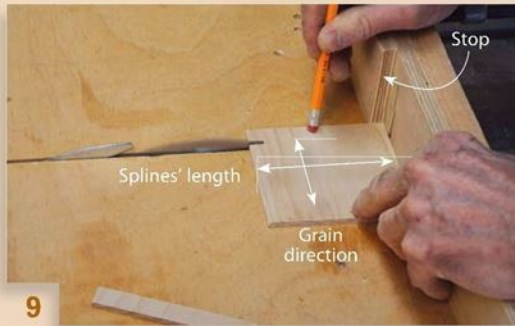
9

Cut the splines so the grain runs across their width by using a crosscut sled, a stop and a blank ripped to the splines' length. This grain orientation creates a stronger, longer-lasting joint.

10

Glue the box together after installing the lid panels, the bottom and the splines. Use band clamps at the bottom, middle and top of the joints to pull the miters tight.
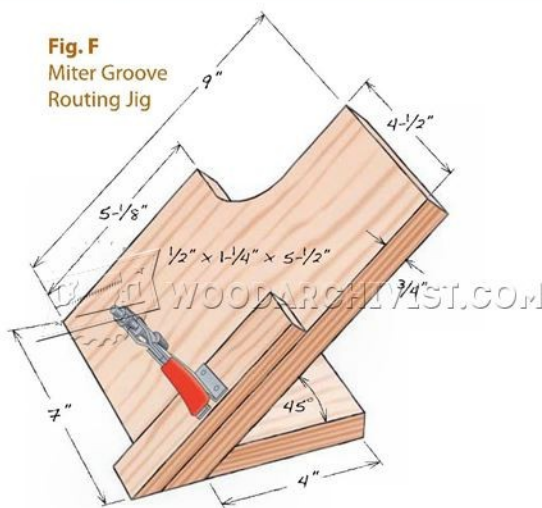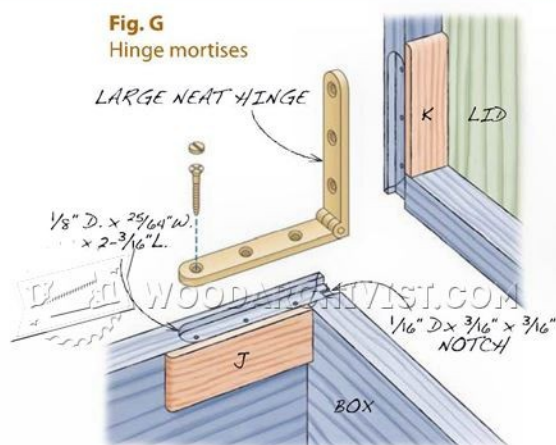
Fig. F
Miter Groove Routing Jig

9"
4-1/2"
5-1/8"
1/2" x 1-1/4" x 5-1/2"
3/4"
7"
45°
4"

Fig. G
Hinge mortises

LARGE NEAT HINGE

K   LID

1/8" D. x 25/64"W. x 2-3/16"L.

J

BOX

1/16" D x 3/16" x 3/16" NOTCH

Assemble the box

After making sure the splined miter joints fit properly, the next step is to assemble the box with the bottom and the lid panels installed, to make sure they fit properly as well. Notch the corners of the bottom to facilitate its fitting. Center the center panel on the box front and back pieces. On the underside, install 1/16" spacers between the center panel and each outside panel, to allow seasonal movement. When everything fits well, it's time to glue the box together.

Gluing the box is a complex process, so it's best to use glue with a long open time (see Sources). Start by placing the panels on the box front, with a dab of glue at the center of each tongue, so that expansion and contraction will occur from that point. Install the 1/16" spacers to hold the panels in the correct position. (The spacers will be removed later, after the lid has been cut from the body.)

Spread glue on each miter and inside the spline grooves. Insert the spline and assemble the first miter joint by installing one side on the box front as you simultaneously fit the outside panel in its groove—without glue. Install the bottom next and then install the box back (after placing dabs of glue on the

three panels, at the center of each tongue). Gradually work the first two mitered joints close together (but not all the way) and prepare to add the remaining box side. Because of the hidden splines, the last two miter joints have to be carefully nursed into position, gradually working from both ends.

Use band clamps to draw the parts tightly together (**Photo 10**). I prefer Merle band clamps (see Sources). Make sure the corners are square and the three panels are centered at both the front and back. If necessary, you can nurse the miter joints into position with bar clamps.

Cut the lid from the base

Sand the entire box before separating the lid from the base. (Sanding the lid and base separately is likely to cause some misalignment.)

When you set up the saw to cut the lid from the base, make sure the box slides smoothly and will be fully supported at all times as it travels along the fence during the cut. As not all saws are the same, this may require attaching a long board to the fence for additional support. Set the blade height at slightly more than 7/8" to cut through the front of the box (**Photo 11**). Then lower

11 Cut the lid from the box body in stages. First, set the blade just high enough to cut through the 7/8" thick front.

Spacer

12 Lower the blade, install a spacer sized to fit the saw kerf and tape the box together before making each successive cut.

13 Install the lift after routing a stopped groove in the lid, using the method described earlier. Round the ends of the lift to fit the groove.

Hinge supports

14 Follow the hinge manufacturer's instructions to rout the hinge mortises after gluing on supports to widen the box sides. Drill pilot holes before installing the screws.

the blade to slightly more than 1/2" to cut through the sides and back (**Photo 12**). Use scrap-wood spacers and tape to stabilize the box, so the blade won't pinch. After separating the lid from the base, use a sanding block to smooth the cut edges.

Install the lift and hinges

Rout a stopped, centered groove in the lid (Fig. E), 5/16" up from its bottom edge, using stops at both ends, as before, to control the groove's length. Then make a curved lift to fit the routed groove and install it with glue (**Photo 13**).

Hawthorne Craft's new large neat hinges are perfect for mounting the heavy lid (**Photo 14**) and they come with complete installation instructions. Before routing the hinge mortises, glue 1/8" thick supports on the inside of the box and lid (J, K, Fig. G). As always, it's a good idea to rout test pieces to assure the bit height and fence positions are correct. In addition to verifying the fit of the hinges in the mortises, test cuts also help you to get the feel of the operation.

Follow the router-table method detailed in the instructions to rout the mortises. If you don't have the recommended 10mm bit, make two passes with a 3/8" bit—adjust the fence by 1/64" between passes. Set the length of the mortises so that the hinge pivot points stand just outside

the box—any closer and you'll have to chamfer the back edges of both parts to allow the lid to open. You'll also have to cut or rout tiny notches at the back of the mortises in the base to allow clearance for the hinges' 95° stop tabs. ◂

Doug Stowe began his career as a woodworker in 1976, making custom furniture and small boxes. He is the author of seven woodworking books and teaches box making at Marc Adams School of Woodworking and at the Center for Furniture Craftsmanship. His blog, written in advocacy of hands-on learning is **wisdomofhands.blogspot.com**.